

Oak Ridge

Overview

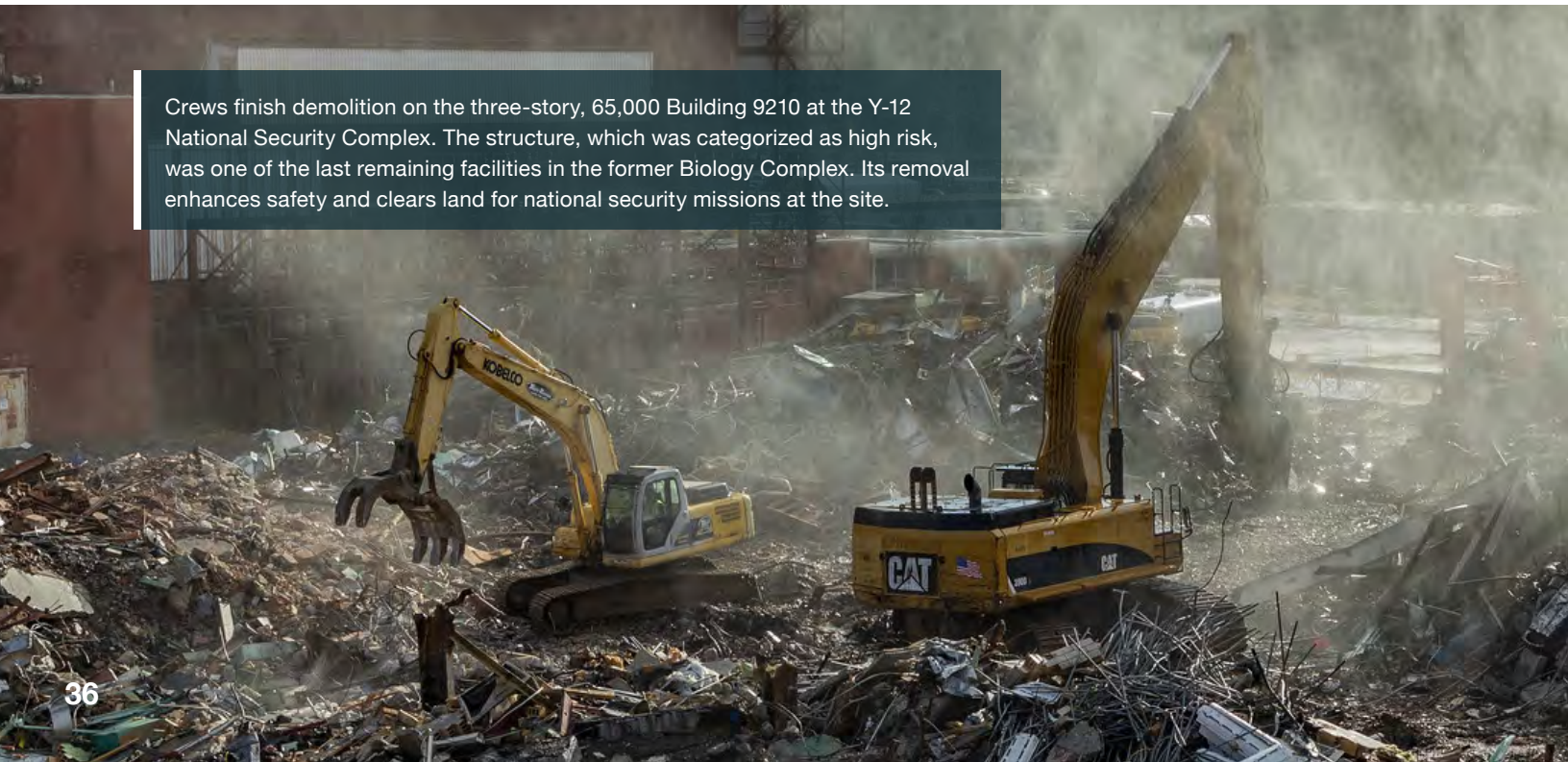
The Oak Ridge Site, located in eastern Tennessee, is one of the three original sites in the Manhattan Project. The U.S. Army Corps of Engineers began acquiring land in the area in October 1942. By March 1943, 56,000 acres were sealed behind fences and major industrial facilities were under construction. The K-25 and Y-12 plants were built to explore different methods to enrich uranium, while the X-10 Site was established as a pilot plant for the Graphite Reactor and to explore methods for the production of plutonium.

Throughout the following decades, the three sites — K-25 (present day ETTP), X-10 (present day ORNL), and Y-12 — purified isotopes, conducted advanced research, manufactured weapons components, and enriched uranium. These activities created environmental legacies that placed the Oak Ridge Reservation on EPA's National Priorities List in 1989.

The Oak Ridge Office of Environmental Management (OREM) is the landlord of ETTP, and it is responsible for the CERCLA cleanup at Y-12 and ORNL. OREM has achieved significant risk reduction across the Oak Ridge Reservation, including the removal of all facilities at ETTP in 2020 four years ahead of schedule, avoiding

\$500 million in costs to taxpayers. With demolition complete at ETTP, OREM has transitioned the skilled, experienced workforce from there to address the many high-risk facilities at ORNL and Y-12. OREM's cleanup of these sites will address DOE's largest inventory of high-risk, excess contaminated facilities (former research reactors, isotope production facilities, and former process buildings considered to be the worst of the worst); eliminate the site's remaining inventory of uranium-233; remediate areas with dense mercury contamination; and provide valuable real estate for NNSA and SC missions.

Throughout all this work, OREM works to keep the surrounding communities in Anderson and Roane counties and the city of Oak Ridge safe and informed. The program also fosters and maintains strong partnerships by involvement with organizations focused on economic opportunities including the East Tennessee Economic Council, Energy Technology and Environmental Business Association, Chamber of Commerce, and the Community Reuse Organization of East Tennessee. Additionally, OREM leadership provides updates and is available to answer the public's questions at monthly Oak Ridge Site Specific Advisory Board meetings. OREM representatives



Crews finish demolition on the three-story, 65,000 Building 9210 at the Y-12 National Security Complex. The structure, which was categorized as high risk, was one of the last remaining facilities in the former Biology Complex. Its removal enhances safety and clears land for national security missions at the site.

also correspond with the city's Environmental Quality Advisory Board and the Roane County Environmental Review Board.

Calendar Year 2020 Accomplishments

- **Met an EM priority to achieve Vision 2020 by completing demolition at ETTP — more than 500 structures totaling 13 million square feet were demolished; this achievement marked the first cleanup of a uranium enrichment complex in the world**
- **Finished construction and opened the K-25 History Center at ETTP**
- **Began demolition on the final structures in Y-12's Biology Complex**
- **Began construction on the Sludge Processing Mock Test Facility, which will mature technologies needed to process Oak Ridge's 500,000-gallon inventory of sludge TRU waste**

Planned Cleanup Scope 2021–2031

Over the next 10 years, OREM expects to make significant progress on cleanup activities at Y-12 and ORNL to help support the important missions of NNSA and SC, as well as eliminating one of the largest remaining security risks at ORNL.

While OREM successfully completed demolition at ETTP, soil and groundwater remediation and closure activities remain. OREM is slated to complete remaining soil remediation at ETTP by 2024. OREM has also reached agreement with Tennessee state regulators to complete necessary RODs for groundwater remedies at ETTP by 2026, and to completion by 2028. Much of land is expected to be transferred to the community for industrial redevelopment.

EM recently completed removing one of the two remaining structures at the former Radioisotope Development Lab (Building 3026) at the Oak Ridge National Laboratory (ORNL). The demolished structure was known as the West Bank Hot Cell. Characterization of the East Bank Hot Cell, the last remaining structure, has already started. Demolition and waste removal will follow characterization, and that project is scheduled for completion in 2022.

In 2021, the remaining buildings in Y-12's Biology Complex, which span more than 320,000 square feet, will be demolished. This project will eliminate five high-risk, excess contaminated facilities, and will open land for national security missions. OREM will also continue deactivation work at major high-risk excess contaminated facilities at Y-12 and ORNL. These projects will eliminate risks, enhance safety, enable modernization, and clear land for new research and national security missions to meet the needs of the nation. In 2022, OREM expects to award a new contract, employing EM's end-state contract model, for continued cleanup activities at Y-12 and ORNL.

In 2023, OREM is scheduled to complete mockup testing for sludge processing. This involves finishing construction on the Sludge Processing Mock Test Facility and operating that facility to assist in technology testing and maturation related to future processing of Oak Ridge's inventory of sludge TRU waste. In 2025, the Outfall 200 Mercury Treatment Facility is expected to be operational at Y-12. The facility will be able to treat 3,000 gallons of water per minute, and it will include a two-million-gallon storage tank to collect stormwater.


OREM is now expected to finish processing, downblending, and disposing the remaining inventory of uranium-233 stored at ORNL by 2027 based on the contractor's planned approach. This is EM's highest priority at ORNL because it constitutes a Category I quantity of highly enriched fissile material and drives the security posture of the site. The completion of this project will significantly reduce risks and security costs, and it will enable deactivation of a Manhattan Project-era facility located in the heart of ORNL. By 2028, as a result of revised shipping assumptions, all of the processing and shipments of Oak Ridge's inventory of legacy TRU debris waste will be completed. This inventory includes both contact-handled and remote-handled waste.

By the late 2020s, OREM expects to complete construction on the first phase of the new Environmental Management Disposal Facility. This crucial facility will provide the on-site waste disposal capacity for LLW generated by completing cleanup at ORNL and Y-12. The facility is anticipated to avoid more than \$700 million in costs that would be required if all LLW were disposed at off-site facilities.

Key Regulatory Milestones 2021–2031

Cleanup of the Oak Ridge Reservation is governed by a Federal Facility Agreement between DOE, EPA, and the Tennessee Department of Environment and Conservation. This agreement establishes the guidelines and milestones for cleanup in Oak Ridge in accordance with CERCLA and other laws.

- Complete demolition on the remaining Biology Complex buildings at Y-12 — January 2022
- Complete the final ETTP Main Plant Area groundwater ROD — January 2022
- Complete soil remediation at the EU-5 area of Y-12 — April 2022
- Complete the Zone 1 soil ROD for ETTP — May 2022
- Complete demolition of Building 3026-D — September 2022
- Complete pre-demolition of ORNL Central Campus Research Reactor Complex — September 2023
- Complete demolition of Building 3005 and Building 3010 — September 2023



A rendering of the \$10 million Sludge Processing Mock Test Facility, which will play a vital role in maturing technologies needed to begin processing Oak Ridge's 500,000-gallon inventory of TRU sludge waste. Construction is already underway.

Post-2031 Cleanup Scope

At Oak Ridge, the remaining work will focus on completing cleanup at ORNL and Y-12. This will include deactivating and demolishing the remaining excess contaminated facilities, remediating soil and groundwater, and addressing source contamination. OREM will also work to complete the processing of 530,000 gallons of TRU sludge and operate the program's waste treatment and disposal facilities.